Amendments To The Claims

A detailed listing of all claims that are, or were, in the present application, irrespective of whether the claim(s) remains under examination in the application are presented below. The claims are presented in ascending order and each includes one status identifier.

Claims 1-40 (Cancelled)

Claim 41 (Cancelled)

Claim 42.   (Currently Amended)   An~~The~~ autosteroscopic projection arrangement ~~according to Claim 41, further~~ comprising:

a first projector, and

a first filter array having a multitude of filter elements, in which

the projector projects bits of partial information from views of a scene or object onto a projection screen, where the bits of partial information are rendered on image rendering elements and, having passed the filter array, are made visible to an observer, and in which

the image rendering elements correspond with correlated filter elements, as regards the propagation direction of the bits of partial information, in such a way that the observer will see predominantly bits of partial information from a first selection of views with a first eye and predominantly bits of partial information from a second selection of views with a second eye, so that the observer perceives a spatial impression,

2   App. No. 10/520,860

a second projector,

a second filter array, in which the first filter array is arranged between the projection

screen and the projectors, and the second filter array is arranged in front of the projection screen

and in which

the first and second filter arrays have wavelength filter elements arranged in columns and

rows that are transparent to light of different wavelengths or different wavelength ranges and in

which

the projectors project bits of partial information from views of a scene or object through

at least one of the first and second filter arrays and onto the projection screen, so that bits of

partial information of the views are made optically visible on the projection screen in

combination or mix determined by a geometry of the arrangement, and the projection screen is

divided into a grid of image rendering elements which are arranged in columns and rows and,

depending on the embodiment of the filter arrays and the projectors, radiate light of particular

wavelengths or wavelength ranges, with each image rendering element rendering bits of partial

information of at least one of the views, and in which

the second filter array arranged in front of the projection screen defines propagation

directions for the light radiated by the projection screen toward the observer, in which any

individual image rendering element corresponds with several allocated wavelength filters of the

filter array, or one wavelength filter of the filter array corresponds with several allocated image

rendering elements, in such a way that a straight line connecting a first centroid of the cross-

section area of a visible portion of the image rendering element and a second centroid of the

cross-section area of a visible portion of the wavelength filter represents one propagation

3   App. No. 10/520,860

direction, so that, from every viewing position, the observer will see predominantly bits of partial information of a first selection of views with the first eye, and predominantly bits of partial information of a second selection of views with the second eye, so that the observer perceives a spatial impression from a multitude of viewing positions.

Claim 43.   (Previously presented)   The autosteroscopic projection arrangement according to Claim 42, in which each of the filter arrays contains wavelength filter elements arranged in a specific grid assigned to it, consisting of rows and columns, which are arranged on the filter array depending on their transmission wavelength or their transmission wavelength range according to the following function:

$$b = p_A - d_{Apq} \cdot q_A - n_{Am} \cdot IntegerPart\left[\frac{p_A - d_{Apq} \cdot q_A - 1}{n_{Am}}\right], \text{ wherein}$$

(p_A=p) is the index of a wavelength filter in a row of the respective array,

(q_A=q) is the index of a wavelength filter in a column of the respective array (F_A),

(b) is an integer that defines one of the specified transmission wavelengths or wavelength ranges for a wavelength filter of the filter array in the position (p_A,q_A), and may have values between 1 and b_{Amax},

(n_{Am}) is an integer greater than zero that corresponds to the total number (n) of the views (A_k) displayed by the projectors,

(d_{Apq}) is a selectable mask coefficient matrix for varying the arrangement of the wavelength filters on the respective array, and

IntegerPart is a function for generating the greatest integer that does not exceed the

<div align="center">4</div>

<div align="right">App. No. 10/520,860</div>

argument put in square brackets.

Claim 44.   (Previously presented)   The autostereoscopic projection arrangement according to Claim 42, in which

at least two of the filter arrays cannot be made completely congruent by horizontal and/or vertical linear scaling of their structures, and

the filter arrays are arranged at a distance (z_A) in front or behind the projection screen (in viewing direction), respectively, in which (z_A) may adopt values in the range of -60 mm $\leq (z_A)$ ≤ 60 mm, with a negative value of (z_A) meaning arrangement in front of the projection screen and a positive value of (z_A) meaning arrangement behind the projection screen at the respective distance given by the absolute amount of (z_A).

Claim 45.   (Previously presented)   The autostereoscopic projection arrangement according to Claim 42, in which at least one filter element of at least one of the filter arrays comprises a lens or a prism.

Claim 46.   (Previously presented)   The autostereoscopic projection arrangement according to Claim 45, in which the lens comprises a cylindrical lens.

Claim 47.   (Previously presented)   The autostereoscopic projection arrangement according to Claim 45 in which the lenses or prisms are arranged in columns only or in rows only.

App. No. 10/520,860

Claim 48.   (Previously presented)   The autostereoscopic projection arrangement according to Claim 42 in which the projection screen is translucent.

Claim 49.   (Previously presented)   The autostereoscopic projection arrangement according to Claim 42 in which at least one of the projectors projects a combination image composed of bits of partial information of at least two views (A_k), in which preferably two projectors each project a combination image composed of bits of partial information of at least two views (A_K) and the image combination structure of the views (A_K) selected differs for the said two projectors.

Claim 50.   (Currently Amended)   An~~The~~ autostereoscopic projection arrangement ~~according to Claim 41, further~~ comprising

a first projector, and

a first filter array having a multitude of filter elements, in which

the projector projects bits of partial information from views of a scene or object onto a projection screen, where the bits of partial information are rendered on image rendering elements and, having passed the filter array, are made visible to an observer, and in which

the image rendering elements correspond with correlated filter elements, as regards the propagation direction of the bits of partial information, in such a way that the observer will see predominantly bits of partial information from a first selection of views with a first eye and predominantly bits of partial information from a second selection of views with a second eye, so

that the observer perceives a spatial impression,

a second projector,

in which the first filter array is arranged between the projection screen and the projectors, and

in which the projection screen is suitable for front projection; and

in which the filter array has wavelength filter elements that are arranged in columns and rows, are transparent to light of different wavelengths or different wavelength ranges, and absorb the light that is not transmitted at least partially, and in which

the projectors project bits of partial information from views of a scene or object through at least one of the first and second filter arrays and onto the projection screen, so that bits of partial information of the views are made optically visible on the projection screen in combination or mix determined by a geometry of the arrangement, and the projection screen is divided into a grid of image rendering elements which are arranged in columns and rows and, depending on the embodiment of the filter arrays and the projectors, radiate light of particular wavelengths or wavelength ranges, with each image rendering element rendering bits of partial information of at least one of the views, and in which

the first filter array defines propagation directions for the light radiated by the projection screen toward the observer, in which any individual image rendering element corresponds with several allocated wavelength filters of the filter array, or one wavelength filter of the filter array corresponds with several allocated image rendering elements, in such a way that a straight line connecting a first centroid of the cross-section area of a visible portion of the image rendering element and a second centroid of the cross-section area of a visible portion of the wavelength

7   App. No. 10/520,860

filter represents one propagation direction, so that, from every viewing position, the observer will see predominantly bits of partial information of a first selection of views with the first eye, and predominantly bits of partial information of a second selection of views with the second eye, so that the observer perceives a spatial impression from a multitude of viewing positions.

Claim 51.   (Previously presented)   The autostereoscopic projection arrangement according to Claim 50, in which the filter array comprises wavelength filter elements (β_{pq}) in a grid of rows (q) and columns (p), which, depending on their transmission wavelength/their transmission wavelength range (λ_b) are arranged on the filter array according to the following function:

$$b = p - d_{pq} \cdot q - n_m \cdot IntegerPart\left[\frac{p - d_{pq} \cdot q - 1}{n_m}\right], \text{wherein}$$

(p) is the index of a wavelength filter β_{pq} in a row of the array,

(q) is the index of a wavelength filter β_{pq} in a column of the array,

(b) is an integer that defines one of the specified transmission wavelengths/wavelength ranges (λ_b) for a wavelength filter (β_{pq}) of the filter array in the position (p,q), and may have values between 1 and b_{max},

(n_m) is an integer greater than zero that preferably corresponds to the total number (n) of the views (A_k) displayed by the projectors,

(d_{pq}) is a selectable mask coefficient matrix for varying the arrangement of the wavelength filters on the array, and

IntegerPart is a function for generating the greatest integer that does not exceed the

8   App. No. 10/520,860

argument put in square brackets.

Claims 52-53. (Cancelled)

Claim 54.   (Currently Amended)   An~~The~~ autostereoscopic projection arrangement ~~according to Claim 41,~~ comprising:

a first projector, and

a first filter array having a multitude of filter elements, in which

the projector projects bits of partial information from views of a scene or object onto a

projection screen, where the bits of partial information are rendered on image rendering elements

and, having passed the filter array, are made visible to an observer, and in which

the image rendering elements correspond with correlated filter elements, as regards the

propagation direction of the bits of partial information, in such a way that the observer will see

predominantly bits of partial information from a first selection of views with a first eye and

predominantly bits of partial information from a second selection of views with a second eye, so

that the observer perceives a spatial impression,

in which:

the projection screen is suitable for front projection,

the first filter array is arranged between the projection screen and the projector,

the first filter array comprises wavelength filter elements that are arranged in columns

and rows, are transparent to light of different wavelengths or different wavelength ranges, and

absorb the light that is not transmitted at least partially, and in which

<div align="center">9</div>

<div align="right">App. No. 10/520,860</div>

the projector projects bits of partial information from views of a scene or object through

at least one of the first and second filter arrays and onto the projection screen, so that bits of

partial information of the views are made optically visible on the projection screen in

combination or mix determined by a geometry of the arrangement, and the projection screen is

divided into a grid of image rendering elements which are arranged in columns and rows and,

depending on the embodiment of the filter arrays and the projectors, radiate light of particular

wavelengths or wavelength ranges, with each image rendering element rendering bits of partial

information of at least one of the views, and in which

the first filter array defines propagation directions for the light radiated by the projection

screen toward the observer, in which any individual image rendering element corresponds with

several allocated wavelength filters of the filter array, or one wavelength filter of the filter array

corresponds with several allocated image rendering elements, in such a way that a straight line

connecting a first centroid of the cross-section area of a visible portion of the image rendering

element and a second centroid of the cross-section area of a visible portion of the wavelength

filter represents one propagation direction, so that, from every viewing position, the observer

will see predominantly bits of partial information of a first selection of views with the first eye,

and predominantly bits of partial information of a second selection of views with the second eye,

so that the observer perceives a spatial impression from a multitude of viewing positions.

Claim 55.   (Currently Amended)   An~~The~~ autostereoscopic projection arrangement

~~according to Claim 41,~~ comprising:

a first projector, and

10   App. No. 10/520,860

a first filter array having a multitude of filter elements, in which

the projector projects bits of partial information from views of a scene or object onto a projection screen, where the bits of partial information are rendered on image rendering elements and, having passed the filter array, are made visible to an observer, and in which

the image rendering elements correspond with correlated filter elements, as regards the propagation direction of the bits of partial information, in such a way that the observer will see predominantly bits of partial information from a first selection of views with a first eye and predominantly bits of partial information from a second selection of views with a second eye, so that the observer perceives a spatial impression,

in which:

the projection screen is a translucent projection screen, and

further comprising a second filter array, in which the first filter array is arranged between the projection screen and the projectors, and the second filter array is arranged front of the projection screen and in which

the first and second filter arrays have wavelength filter elements arranged in columns and rows that are transparent to light of different wavelengths or different wavelength ranges and in which

the projector projects bits of partial information from views of a scene or object through at least one of the first and second filter arrays and onto the projection screen, so that bits of partial information of the views are made optically visible on the projection screen in combination or mix determined by a geometry of the arrangement, and the projection screen is divided into a grid of image rendering elements which are arranged in columns and rows and,

which radiate light of particular wavelengths or wavelength ranges, with each image rendering element rendering bits of partial information of at least one of the views, and in which

the second filter array, arranged in front of the projection, screen defines propagation directions for the light radiated by the projection screen toward the observer, in which any individual image rendering element corresponds with several allocated wavelength filters of the filter array, or one wavelength filter of the filter array corresponds with several allocated image rendering elements, in such a way that a straight line connecting a first centroid of the cross-section area of a visible portion of the image rendering element and a second centroid of the cross-section area of a visible portion of the wavelength filter represents one propagation direction, so that, from every viewing position, the observer will see predominantly bits of partial information of a first selection of views with the first eye, and predominantly bits of partial information of a second selection of views with the second eye, so that the observer perceives a spatial impression from a multitude of viewing positions.

Claim 56.   (Previously presented)   The autostereoscopic projection arrangement according to Claim 54, in which

the projector radiates light of different wavelengths or wavelength ranges in succession, and the bits of partial information of each of the views are radiated in pairs of different wavelengths or wavelength ranges, in which

bits of partial information of $n=3$ views (A_K with $k=1..n$) are displayed, the projector is a DMD/DLP projector, and view A_1 ($k=1$) is displayed exclusively in red, view A_2 ($k=2$) exclusively in green, and view A_3 ($k=3$) exclusively in blue.

<div align="center">12</div>

App. No. 10/520,860

Claim 57.   (Previously presented)   The autostereoscopic projection arrangement according to Claim 55, in which

the projector radiates light of different wavelengths or wavelength ranges in succession, and the bits of partial information of each of the views are radiated in pairs of different wavelengths or wavelength ranges, in which

bits of partial information of n=3 views (A_K with k=1..n) are displayed, the projector is a DMD/DLP projector, and view A_1 (k=1) is displayed exclusively in red, view A_2 (k=2) exclusively in green, and view A_3 (k=3) exclusively in blue.

Claim 58.   (Currently Amended)   An ~~A~~autostereoscopic projection arrangement ~~according to Claim 41,~~ comprising:

a first projector, and

a first filter array having a multitude of filter elements, in which

the projector projects bits of partial information from views of a scene or object onto a projection screen, where the bits of partial information are rendered on image rendering elements and, having passed the filter array, are made visible to an observer, and in which

the image rendering elements correspond with correlated filter elements, as regards the propagation direction of the bits of partial information, in such a way that the observer will see predominantly bits of partial information from a first selection of views with a first eye and predominantly bits of partial information from a second selection of views with a second eye, so that the observer perceives a spatial impression,

13   App. No. 10/520,860

in which

the projection screen is a translucent projection screen,

the first projector is arranged behind the projection screen,

the first filter array is arranged in front of the projection screen,

the first filter array has wavelength filter elements arranged in columns and rows that are transparent to light of different wavelengths or different wavelength ranges and in which

the projector projects bits of partial information from views of a scene or object through at least one of the first and second filter arrays and onto the projection screen, so that bits of partial information of the views are made optically visible on the projection screen in combination or mix determined by a geometry of the arrangement, and the projection screen is divided into a grid of image rendering elements which are arranged in columns and rows and, which radiate light of particular wavelengths or wavelength ranges, with each image rendering element rendering bits of partial information of at least one of the views, and in which

the second filter array, arranged in front of the projection screen, defines propagation directions for the light radiated by the projection screen toward the observer, in which any individual image rendering element corresponds with several allocated wavelength filters of the filter array, or one wavelength filter of the filter array corresponds with several allocated image rendering elements, in such a way that a straight line connecting a first centroid of the cross-section area of a visible portion of the image rendering element and a second centroid of the cross-section area of a visible portion of the wavelength filter represents one propagation direction, so that, from every viewing position, the observer will see predominantly bits of partial information of a first selection of views with the first eye, and predominantly bits of

14   App. No. 10/520,860

partial information of a second selection of views with the second eye, so that the observer

perceives a spatial impression from a multitude of viewing positions.

Claim 59.   (Cancelled)

Claim 60.   (Previously presented)   The autostereoscopic projection arrangement

according to Claim 42 in which

the alignment and structure of the filter array between the projectors and the projection

screen are selected in such a way that each image rendering element on the projection screen can

receive light from at least one of the projectors, and

the projection screen is curved, so that essentially equal angles of incidence are obtained

for the light received from the various projectors.

Claim 61.   (Previously presented)   The autostereoscopic projection arrangement

according to Claim 60, in which for each projector, a separate projection position and projection

direction is specified related to the projection screen, preferably with the projection direction and

the projection distance differing from projector to projector.

Claims 62-101.   (Cancelled)

App. No. 10/520,860